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FUTURE DEVELOPMENT OF THE METROPOLITAN OAKLAND INTERNATIONAL AIRPORT

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FUTURE DEVELOPMENT OF THE METROPOLITAN OAKLAND INTERNATIONAL AIRPORT*

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The Port of Oakland has operated the Oakland Municipal Airport, now known as the Metropolitan Oakland International Airport, since early in 1927. Most of the early pioneering flights from the Bay Area took off from the Oakland Airport.

The Airport has, through the years, been operated as a unit of the Port of Oakland, which also operates the waterfront facilities of the City of Oakland. Funds for the development of the Airport have been extremely limited and have in the main come from harbor earnings. These have not been sufficient to expand the airport to the proportions needed to provide for the aviation demands of the City of Oakland and the Eastbay area.

Everyone admits, and anyone visiting the airport would realize, that the airport is lacking in facilities. The terminal building is woefully inadequate. As an illustration, the lobby and ticketing area now provided is approximately 2300 square feet, whereas Civil Aeronautics Administration standards for an airport with the passenger load of Oakland would require approximately 14,000 square feet of area. This inadequacy has long been realized by the Port management, so in April 1953 the Board of Port Commissioners proposed a general obligation bond issue in the amount of $10 million to the voters of Oakland. This was approved by the voters by a vote in excess of the necessary two-thirds majority, which proved that the people were desirous of obtaining a modern airport.

In order that a proper plan for development of the airport could be obtained, the Board authorized the employment of airport consultants and engineers to develop a Master Plan for improvement of the airport. After a survey of the entire field of airport consultants, the firm of Knappen-Tippetts-Abbett-McCarthy of New York was selected to make a comprehensive survey and report. The firm began its study in June 1953 and rendered its report to the Board on July 15, 1954, after more than a year of intensive study.

These remarks will be confined to a discussion of the report as rendered by Knappen-Tippetts-Abbett-McCarthy.

The report first roughly covers the history of the airport which need not be enlarged on in this paper. The report points out that at present nine major scheduled airlines and many non-scheduled air carriers are served at the Oakland Airport; that Oakland is the site of a Naval Reserve Aviation Air Station; that in 1953 over half a million air passengers enplaned or deplaned at Oakland, and aircraft movements totaled approximately 190,104. This is high in the list of United States airports. The airport is presently served by three runways, two parallel runways, roughly East and West, the longest of which is 6,200 feet long and the other 5,500 feet, and a cross runway North

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and South 5,400 feet long. All the runways are hard-surfaced. The lengths of present existing runways are not considered adequate for a major airport, and the weight capacity is below that necessary for a major airport.

Oakland is the center for air traffic control in the San Francisco-Bay Area. Air traffic halfway to Hawaii to the west, halfway to Los Angeles to the south, halfway to Oregon on the north and halfway to Reno on the East, is controlled and directed from the Oakland Air Route Traffic Control Center. The airport is equipped with all the most modern lighting, and with all the safety, radio, and radar aids considered to be necessary to safe air navigation.

The consultants made a survey of the air traffic potential of the East Bay Area. The report points to the tremendous growth of population in California, especially that of the nine bay area counties which have had a growth between 1940 and 1950 of about 54%, as against a U. S. average of about 14.5%.

The population tributary to the Oakland Airport at the time of the report totaled 1,562,500. This may be compared with that tributary to the San Francisco Airport of 1,453,300. The East Bay Area is gradually forging ahead. Industrial growth on the Oakland side of the Oakland-San Francisco bay is especially active. All of these growth factors will require the development of Oakland Airport. This growth will in no way detract from the potential or need for the great San Francisco Airport. Both airports, and more will be required for this fast growing area.

The growth not only of population but that of air passenger traffic has been especially active in the bay area. Between 1946 and 1952 air passenger traffic in the United States doubled, whereas air travel in the bay area increased 2 1/2 times. During that period air travel at Oakland Airport increased almost 6 times. These figures substantiate the need for expanded airport facilities for Oakland. Lack of satisfactory airport facilities are considered to be in a measure responsible for lack of adequate schedules.

A survey of passengers using Oakland and San Francisco airports was made by the consultants and it was found that based on its location and on the number of people traveling by air, Oakland should receive 27% of the Bay Area air travel, whereas it only receives 16%. Because of inadequate schedules 11% of the air travelers who would be more conveniently served by Oakland are forced to go to San Francisco to enplane.

After a study of the air traffic potential in the bay area the consultants have predicted traffic at Oakland will probably be as shown in the table on the following page.

As a result of the studies briefly recapped, the consultants came to these conclusions:

1) That additional airfield capacity was needed. This additional capacity applied both to number of runways and weight of planes to be accommodated.
2) That additional passenger terminal building capacity was needed.

The airfield improvement recommended by the consultants was the construction of an entirely new principal runway. This runway, they determined, should be located about a mile offshore from the present east-west runway, as shown on plate IX.

The proposed runway should be 200 feet wide by 8,600 feet long. It should be designed for a gross airplane load of 200,000 pounds.

The proposed runway in this location will give unobstructed over-water approaches at both ends of the runway. The Port of Oakland considers this feature to be highly desirable. In addition to providing clear approaches at

Enplaned Passengers, Oakland

	Minimum	Probable	Maximum
1953 (Present)		291,686	
1960	580,000	625,000	700,000
1965	830,000	920,000	1,010,000
1970 1,030,000	1,050,000	1,150,000	1,270,000

Cargo (Oakland) Tons

1953		3,910	
1960	13,500	15,000	16,500
1965	22,000	26,000	30,000
1970	32,000	38,000	44,000

Mail (Oakland) Tons

1953		560	
1960	1,800	2,300	2,800
1965	3,500	4,000	5,000
1970	4,000	5,000	6,000

Total Aircraft Movements

1953 (Actual)		190,104	
1960 (90 per hour)	260,000	295,000	335,000
1965 (105 per hour)	320,000	370,000	415,000
1970 (120 per hour)	360,000	425,000	490,000

each end of the runway, the runway will be so located as to permit instrument operations to be made straight in from the Newark fan marker. This will eliminate the present dog leg over Hayward with its attendant dangers. This is especially important during instrument operations. Three planes have been lost in the last three years on this dog leg. This change has been recommended by the CAA and has been made a must if Oakland is to be eligible for further Federal aid. It will make for faster as well as safer instrument procedures.

A second new runway is planned offshore from the first new runway. This is also shown on the master plan. This, it is predicted, will be needed by about 1970, when the capacity of the three-runway system will be exceeded. When this runway is constructed, the first or inshore runway of the two runways would be a take-off runway and the other new runway would be a landing-runway. This would provide and insure, for all time, approaches and take-offs over water, rather than over inhabitated areas.

To provide these clear approaches, certain privately owned areas, presently under water, would be required. If the plan is followed, some 480 acres would be acquired adjoining Bay Farm Island. In addition, 68 acres of property owned by the State of California, but held in trust by the City of Alameda under grant from the State and dedicated to the promotion of commerce and

navigation will also be needed. When the second runway is constructed, certain additional private property at the east end of the airport will also be required to preserve for all time the over-water approaches.

Taxiways are recommended for construction parallel to the runway. The recommendation is made that diagonal turnoffs be provided at intervals for high-speed operation.

The new runway direction is at a small angle with the existing east-west runway. The divergence is approximately 22 degrees. Later studies may decrease this divergence.

To meet the desires of Alameda, the runway is to be turned as much as possible away from Bay Farm Island so as to eliminate insofar as possible flying over Alameda, and at the same time provide a straight in approach from the fan marker at Newark.

This proposed alignment of runways provides a wind coverage of 99.8%.

The plan contemplates the eventual elimination of the existing north-south runway. This will have the effect of only reducing the runway use by about 1% of the time, reducing the wind coverage from 99.9% of the time to 99.8% of the time, and as planes become more adaptable to cross wind landings, will be close to 100%.

Prior to the securing of this report, consideration had been given to placing first stage terminal facilities in the open space west of Hangar No. 5, with second stage terminal facilities located south of existing runways in somewhat the same location as that now proposed by the consultants. This proposal was carefully studied by the consultants and an alternate stage plan was recommended. The new plan recommends the construction now of an entirely new terminal area in its permanent future location in a new area located south of the present airport. This recommendation was made for certain definite reasons as follows:

a) There is ample room in the new area to allow for growth over the years and no funds would be wasted on construction later forced to be abandoned or adapted to other use.
b) The proposed location would be equally accessible to the new and existing runways so that the new and present field could be operated as a unit.
c) The placing of new facilities in a new location would relieve existing facilities so they could be used for existing operations and would make available additional hangar space for cargo and other uses.
d) The new areas could be provided without interference with existing operations and would provide space for future cargo building, a heliport area and ample space for automobile parking. Specifically, the recommendations made were as follows:

1) Implement the Master Plan for Metropolitan Oakland International Airport which is shown in Plate IX.
2) Proceed with construction of a new 8,600 ft. runway off-shore from the present airfield with a 12/30 alignment, with provisions for a second parallel runway to be constructed ultimately.
3) Locate a new terminal area between the present runway system and the new runway, with ample provisions for expansion of all types of terminal facilities.
4) Construct an access road connecting the new terminal area to the intersection of Hegenberger Road and Doolittle Drive, and locate a new operations area adjacent to this entrance road.

5) Provide twelve gate positions for fixed wing aircraft and three for helicopters initially at the new terminal, with allowances for rearrangement and expansion as airport traffic grows and jet aircraft become frequent users.
6) Install various apron services along the edge of the area instead of in underground pits, and provide blast fences and planting strips around each finger.
7) Locate the heliport adjacent to the new passenger terminal with a connecting finger.
8) Provide for eventual seaplane landings in the bay with a connecting taxiway to the terminal.
9) Set aside about ten acres in the new terminal area for a new aviation fuel storage area; contract with an agent for the financing, construction and operation of fuel dispensing system at the new terminal, preferably utilizing the hydrant method; and explore the feasibility of contracting also with an agent to operate the existing fueling system.
10) Provide utilities as shown in Plate XI.
11) Seek all zoning necessary for adequate protection of the airspace surrounding the airport, and acquire underwater land off Bay Farm Island and San Leandro for protection and long-range development.
12) Include development of recreational facilities in the overall airport Master Plan.
13) Utilize some of the existing building space for expansion of various government agencies.
14) Use the present terminal area for a complete private and business aircraft terminal to be managed by a fixed base operator. About 100 personal hangars should be erected in this area.
15) Modify the eating facilities in the present terminal area to accommodate a somewhat different type of clientele.

The other major deficiency at Oakland in addition to runways, is its inadequate terminal building. The existing terminal building provides a total public space of only approximately 4,185 square feet. The new building as proposed will provide a total area of 105,500 square feet of same. The following figures are typical of some of the areas now provided. Lobby and ticketing area in present building - 2,495 square feet, in new building - 18,500 square feet; concession space in present building - 6,670 square feet, in new building 23,500 square feet; Airline space in present building - 3,716 square feet, in new building 25,100 square feet.

Near the start of the survey, the General Manager of the Port of Oakland, the Airport Manager, the architects for the terminal building, Warnecke and Warnecke, and a representative of Knappen-Tippetts-Abbett-McCarthy visited six of the latest recently completed airport terminal buildings in the United States, and from this study arrived at the following basic conclusions:

a) The terminal should function on two levels in order to permit separation of passenger flow from operations activities.
b) The terminal should have a centralized finger plan rather that a decentralized unit plan.
c) The separation of arriving and departing passenger vehicles is desirable.
d) Insofar as possible, all of the public functions in the terminal should

be arranged within one large concourse in order to make it easier for a passenger to find his way and to improve concession activities and income.

e) The general shape of the structure should be as simple as possible in order to effect economies of construction.

The new building, except for a minor mezzanine third floor, is a two-story operation with passengers arriving on the second floor level by an elevated roadway, with ticket operations, waiting rooms, concessions and restaurant also on the second floor level. Airline operations, baggage handling, minor freight service will be performed on the lower floor. Outgoing baggage would be received from the passengers on the second floor level, checked in and then transferred by slide or chute to the lower floor and then by baggage cart to waiting planes on line. Incoming baggage will be taken from planes on to the carts and thence into the building to lower floor baggage claim counter and there claimed by passengers.

Auto parking area will be immediately across roadway from baggage claiming area and passengers may be picked up also along this roadway.

Outgoing passengers after checking tickets and baggage would proceed through second floor level of waiting room and would there pass by the various concessions. Here, conveniently, would be accessible the coffee shop, bar and dining rooms. The dining rooms would have a view of the field from this second floor level. Second floor fingers would extend out onto the field to the gate positions. The plan provides for 12 gate positions as a first unit with provision for 20 or more eventually. Ramps or up escalators would be provided for access to second floor from field level.

The plan for the terminal building is schematic only and architects are being employed who will work out the details of the terminal building. The general plan for the terminal building is shown on Plate XIV attached.

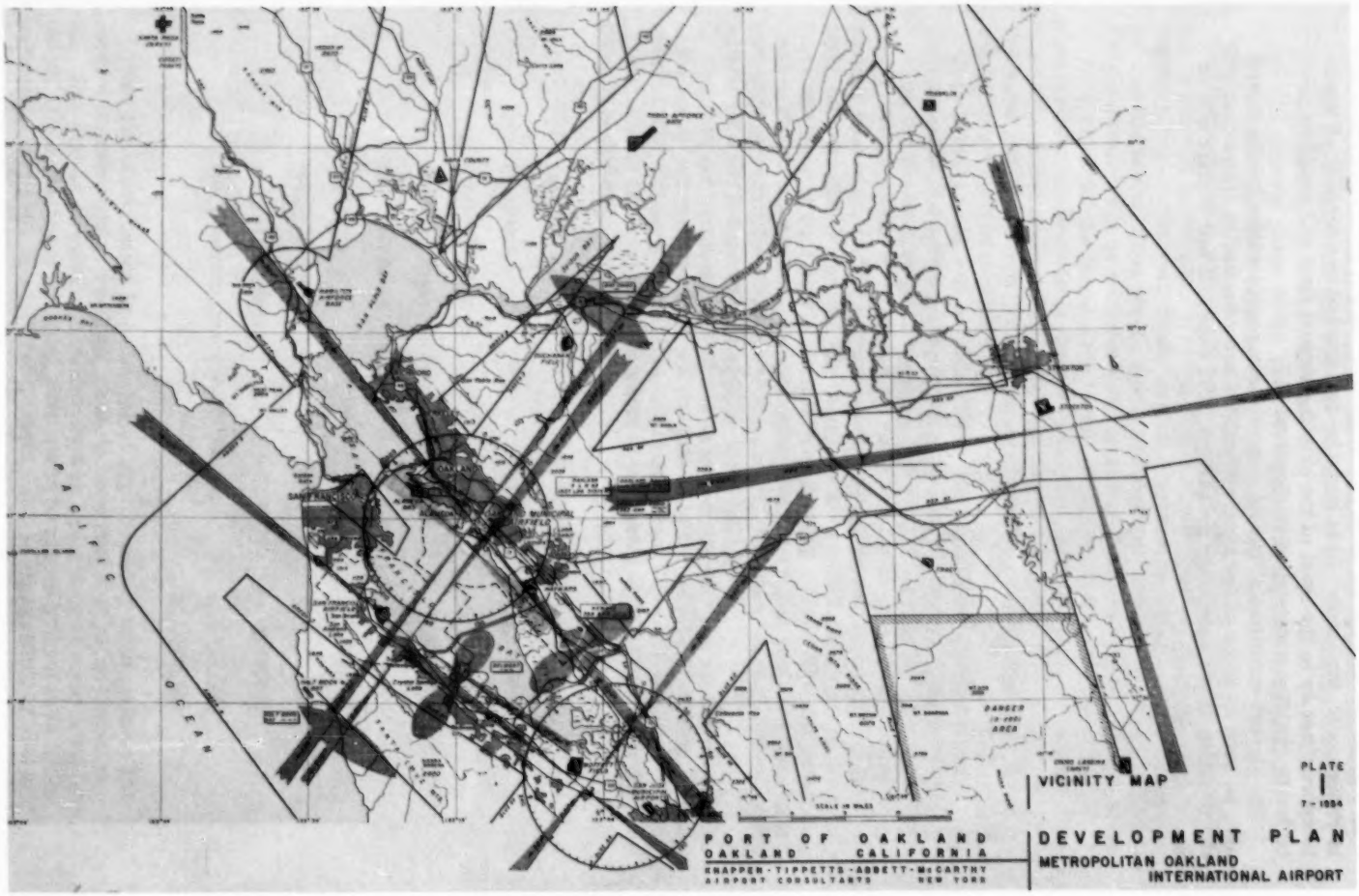
The cost of the total improvements is estimated at $11,500,000, divided roughly as follows:

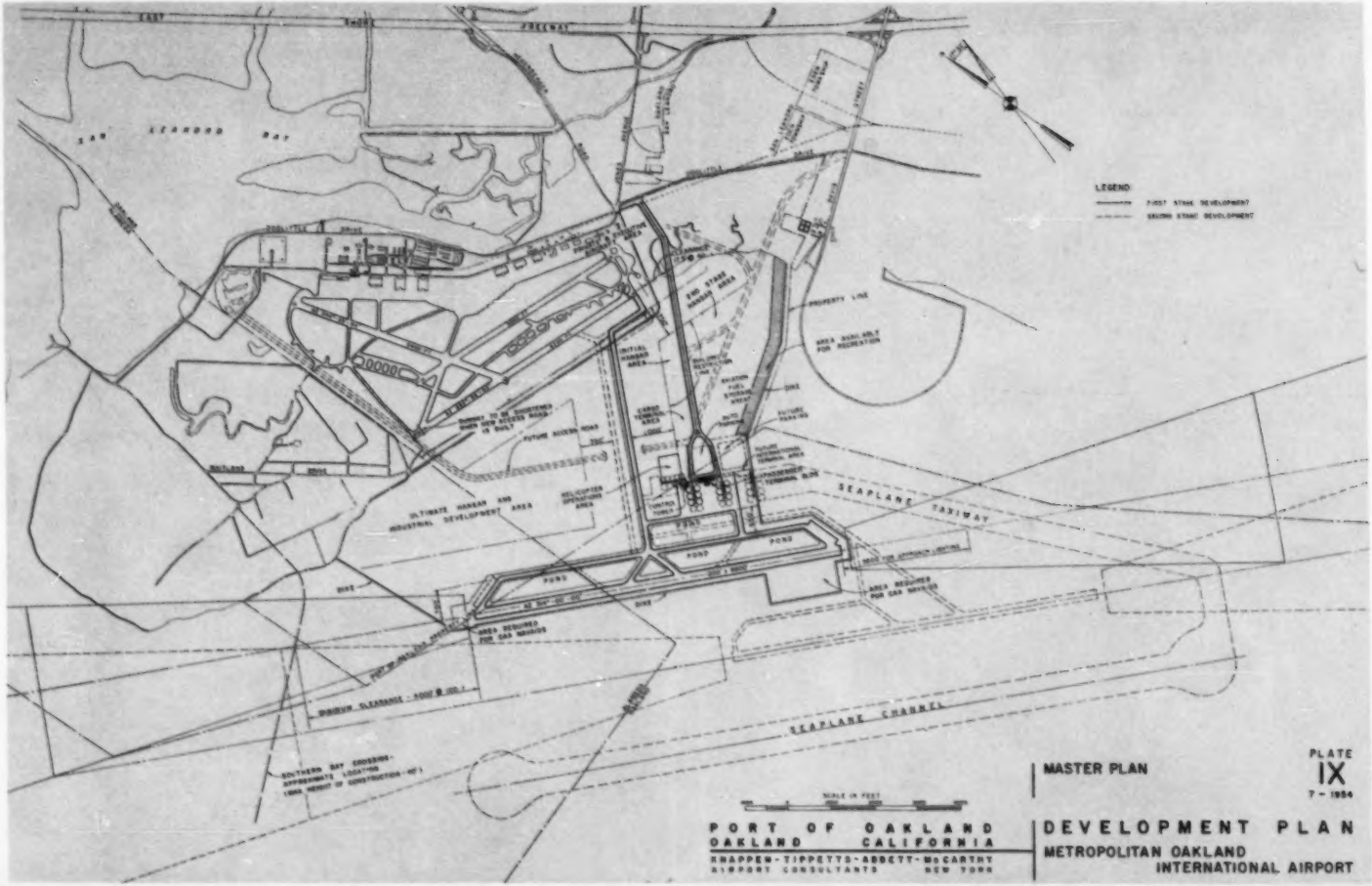
Land Acquisition	$ 100,000
Earthwork	4,890,000
Roadway Paving	240,000
Airfield Paving-Bituminous	1,840,000
Airfield Paving-Concrete	700,000
Utilities	560,000
Drainage	120,000
Airfield Lighting	250,000
New Terminal Area Structures	2,800,000
	$11,500,000

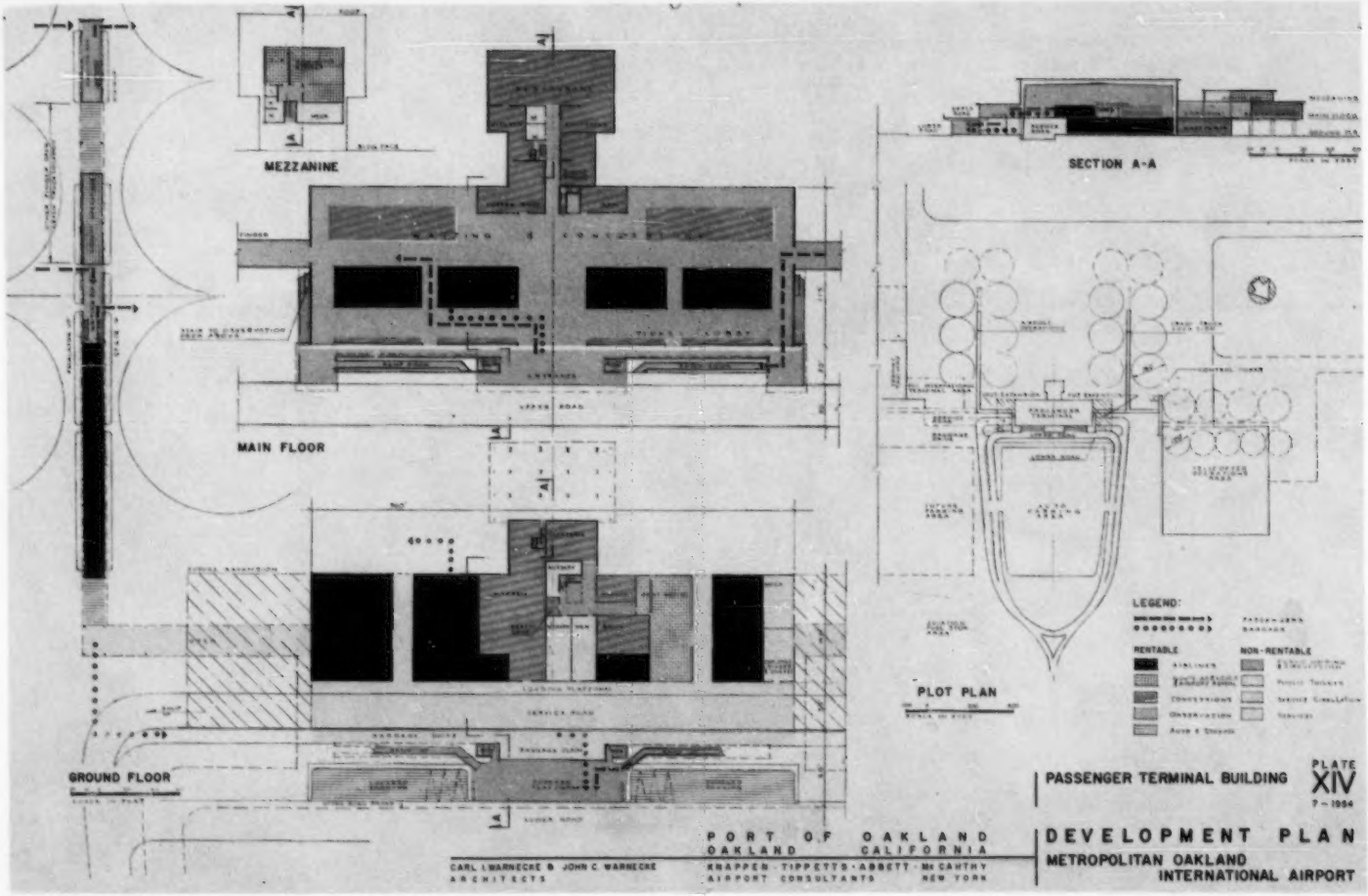
Time for construction is estimated at approximately three years. The method of construction would be, first, to construct dike using hauled in dry fill. The dike is in water approximately 3 to 5 feet deep at mean lower low water. After placing of the dyke, fills would be placed by hydraulic filling with sand. The area on which the airfield would be constructed is overlain

with 9 to 18 feet of soft bay mud. To reduce the weight on this soft mud and to reduce cost, the airport field would be constructed to a level of +6 which is approximately to the level of the existing airport field and would be protected by the dike constructed to elevation +12.

The airport consultants' report is now under consideration by the Board and, as soon as some of the legal difficulties are removed in connection with the securing of the necessary properties, it is expected that a start will be made on construction.


OCEAN
VICINITY MAP
PLATE
7 - 1984
PORT OF OAKLAND
OAKLAND CALIFORNIA
KNAPPEN - TIPPETTS - ABBETT - McCARTHY
AIRPORT CONSULTANTS NEW YORK
DEVELOPMENT PLAN
METROPOLITAN OAKLAND
INTERNATIONAL AIRPORT


LEGEND
SEAPLANE TAXIWAY
SEAPLANE CHANNEL
PROPERTY LINE
MASTER PLAN
PLATE
IX
7 - 1954
PORT OF OAKLAND
OAKLAND CALIFORNIA
KNAPPEN-TIPPETTS-ABBETT-McCARTHY
AIRPORT CONSULTANTS NEW YORK
DEVELOPMENT PLAN
METROPOLITAN OAKLAND
INTERNATIONAL AIRPORT


MEZZANINE
MAIN FLOOR
GROUND FLOOR
SECTION A-A
PLOT PLAN
LEGEND:
RENTABLE
NON-RENTABLE
PASSENGER TERMINAL BUILDING
PLATE XIV
7 - 1954
DEVELOPMENT PLAN
METROPOLITAN OAKLAND INTERNATIONAL AIRPORT
PORT OF OAKLAND
OAKLAND CALIFORNIA
CARL I. WARNECKE & JOHN C. WARNECKE
ARCHITECTS
KNAPPEN · TIPPETTS · ABBETT · McCARTHY
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